

CLAIMS

[1] A thermally conductive pressure-sensitive adhesive composition, comprising 100 parts by weight of an acrylic (or methacrylic) ester copolymer (A) obtained by polymerizing 5 to 70 parts by weight of a monomer mixture (A2m) comprising 40 to 100% by weight of an acrylic (or methacrylic) ester monomer (a5m) capable of forming a homopolymer having a glass transition temperature of -20°C or lower, 0 to 60% by weight of a monomer (a6m) having an organic acid group, and 0 to 20% by weight of a monomer (a7m) copolymerizable with these monomers, when the total monomer mixture (A2m) is regarded as 100% by weight,

in the presence of 100 parts by weight of a copolymer (A1) comprising 80 to 99.9% by weight of acrylic (or methacrylic) ester monomer units (a1) capable of forming a homopolymer having a glass transition temperature of -20°C or lower, 0.1 to 20% by weight of monomer units (a2) having an organic acid group, 0 to 10% by weight of monomer units (a3) having a functional group other than any organic acid group, and 0 to 10% by weight of monomer units (a4) copolymerizable with these monomer units, when the total monomer mixture (A1) is regarded as 100% by weight, and

70 to 170 parts by weight of a metal hydroxide (B),
wherein the acrylic (or methacrylic) ester copolymer (A) is foamed.

[2] The thermally conductive pressure-sensitive adhesive composition according to claim 1, wherein the multiplying factor of the foaming is from 1.05 to 1.4 times.

[3] The thermally conductive pressure-sensitive adhesive composition according to claim 1, further comprising 0.1 to 5 parts by weight of silica (C) comprising primary particles having an average particle diameter of 5 to 20 nm and having a hydrophobicity ratio of 50% or less when it is based on a transmissivity method.

[4] The thermally conductive pressure-sensitive adhesive composition according to claim 1, which further comprises 0.05 to 10 parts by weight of a compound (D) having a melting point of 120 to 200°C and a molecular weight of less than 1000.

[5] The thermally conductive pressure-sensitive adhesive composition according to claim 4, wherein the compound (D) is an aliphatic amide compound.

[6] The thermally conductive pressure-sensitive adhesive composition according to claim 1, wherein the metal hydroxide (B) is aluminum hydroxide.

[7] A thermally conductive sheet-form molded foam comprising the thermally conductive pressure-sensitive

adhesive composition as described in claim 1.

[8] A thermally conductive sheet-form molded foam, which comprises: a substrate; and one or more layers made of the thermally conductive pressure-sensitive adhesive composition as described in claim 1 and formed on a single surface or both surfaces of this substrate.

[9] A process for producing a thermally conductive sheet-form molded foam, which comprises:

the step of mixing 100 parts by weight of a copolymer (A1) comprising 80 to 99.9% by weight of acrylic (or methacrylic) ester monomer units (a1) capable of forming a homopolymer having a glass transition temperature of -20°C or lower, 0.1 to 20% by weight of monomer units (a2) having an organic acid group, 0 to 10% by weight of monomer units (a3) comprising a functional group other than any organic acid group, and 0 to 10% by weight of monomer units (a4) copolymerizable with these monomer units, when the total copolymer (A1) is regarded as 100% by weight, 5 to 70 parts by weight of a monomer mixture (A2m) comprising 40 to 100% by weight of a acrylic (or methacrylic) ester monomer (a5m) capable of forming a homopolymer having a glass transition temperature of -20°C or lower, 0 to 60% by weight of a monomer (a6m) having an organic acid group, and 0 to 20% by weight of a monomer (a7m) copolymerizable with these monomers, when the total monomer mixture (A2m) is regarded as 100%

by weight,

a thermal polymerization initiator (E2) in an amount of 0.1 to 50 parts by weight for 100 parts by weight of the monomer mixture (A2m),

a metal hydroxide (B) in an amount of 70 to 170 parts by weight for 100 parts by weight of the total of the copolymer (A1) and the monomer mixture (A2m), thereby forming a mixture (F);

the step of foaming the mixture (F); the step of heating the mixture (F); and the step of making the mixture (F) into a sheet.

[10] The process for producing a thermally conductive sheet-form molded foam according to claim 9, wherein the step of the foaming the mixture (F) is a step of foaming the mixture (F) to set the foaming multiplying factor thereof into the range of 1.05 to 1.4 times.

[11] The process for producing a thermally conductive sheet-form molded foam according to claim 10, wherein the mixture (F) is a mixture wherein 0.1 to 5 parts by weight of silica (C) comprising primary particles having an average particle diameter of 5 to 20 nm and having a hydrophobicity ratio of 50% or less when it is based on a transmissivity method, are further mixed with 100 parts by weight of the total of the copolymer (A1) and the monomer mixture (A2m).

[12] The process for producing a thermally conductive sheet-form molded foam according to claim 10, wherein the mixture (F) is a mixture (G) wherein 0.05 to 10 parts by weight of a compound (D) having a melting point of 120 to 200°C and a molecular weight of less than 1000 are further mixed with 100 parts by weight of the total of the copolymer (A1) and the monomer mixture (A2m).

[13] The process for producing a thermally conductive sheet-form molded foam according to claim 12, wherein the mixture (G) is a mixture wherein 0.1 to 5 parts by weight of silica (C) comprising primary particles having an average particle diameter of 5 to 20 nm and having a hydrophobicity ratio of 50% or less when it is based on a transmissivity method, are further mixed with 100 parts by weight of the total of the copolymer (A1) and the monomer mixture (A2m).

[14] The process for producing a thermally conductive sheet-form molded foam according to claim 10, wherein the mixture (F) is a mixture (G') wherein 0.05 to 10 parts by weight of an aliphatic amide compound having a melting point of 120 to 200°C and a molecular weight of less than 1000 are further mixed with 100 parts by weight of the total of the copolymer (A1) and the monomer mixture (A2m).

[15] The process for producing a thermally conductive sheet-form molded foam according to claim 14, wherein the mixture (G') is a mixture wherein 0.1 to 5 parts by weight of silica (C) comprising primary particles having an average particle diameter of 5 to 20 nm and having a hydrophobicity ratio of 50% or less when it is based on a transmissivity method, are further mixed with 100 parts by weight of the total of the copolymer (A1) and the monomer mixture (A2m).

[16] The process for producing a thermally conductive sheet-form molded foam according to claim 9, wherein the metal hydroxide (B) is aluminum hydroxide.